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TECHNICAL NOTES
of the
ALASKA FOREST RESEARCH CENTER
U. S. DEPARTMENT OF AGRICULTURE, FOREST SERVICE

No. 9 JUNEAU, ALASKA

## Defect in the Climax Forests of Southeast Alaska

Decay and excessive limbiness cause 97 percent of the visible cull in climax stands. The average deduction for a tree showing decay is 39 percent and for excessive limbs, 6 percent. The other defects are relatively unimportant.

Site 1 contains 15 percent cull due to visible defect compared to 30 percent for Site 5 and about 20 percent for Sites 2, 3 and 4. The number of defective trees does not vary noticeably between sites but the percent cull deduction is less for the trees on the better sites.

The largest trees on any site are the most defective. Sitka spruce and western hemlock of any diameter are less defective on the better sites. For example, the hemlock on Site 5 in the 16-23 inch class have three to four times as much cull as hemlock in the same diameter class on better sites. Western redcedar is less defective on Site 3 than on poorer or better sites.

Cedar is about twice as defective as hemlock and 20 times as defective as spruce in diameters up to 35 inches. The cull in larger trees than this increases rapidly for all species with cedar remaining the most defective and spruce the least. Species composition affects the variation in cull between sites because the better sites contain more spruce and less cedar.

Twenty percent of the cedar, 11 percent of the hemlock and 2 percent of the spruce trees are more than 50 percent cull. All cedars over 37 inches dbh average more than 50 percent cull.

Excessive limbiness and the minor defects are easy to recognize in the field. The accurate estimation of the decay in standing trees is the greatest problem in the determination of the cull volume in climax stands.

Table 1.—Percent cull due to visible defect.

| Diam. | Site 5 | | | | | Site 3 and 4 | | | | | Site 1 and 2 | | | | Av. all sites | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Class | Sp. | Hem. | Ced. | O. | All | Sp. | Hem. | Ced. | O. | All | Sp. | Hem. | Ced. | All | Sp. | Hem. | Ced. | O. | All |
| 8-15 | — | 14 | 14 | 10 | 13 | — | 8 | 14 | 6 | 8 | -- | 5 | 21 | 5 | — | 7 | 15 | 9 | 9 |
| 16-23 | — | 60 | 31 | 30 | 38 | 3 | 14 | 15 | 6 | 12 | — | 9 | 23 | 9 | 1 | 14 | 22 | 11 | 14 |
| 24-31 | — | — | 45 | — | 45 | 2 | 22 | 28 | 7 | 21 | 1 | 19 | 8 | 14 | 2 | 20 | 34 | 7 | 18 |
| 32-39 | — | — | — | — | — | 5 | 32 | 50 | — | 34 | — | 20 | 52 | 15 | 1 | 23 | 51 | — | 20 |
| 46-47 | — | — | — | — | — | 19 | 43 | — | — | 41 | 15 | 34 | 52 | 26 | 15 | 36 | 44 | — | 27 |
| 48-55 | — | — | — | — | — | — | — | — | — | — | 2 | — | 51 | 36 | 2 | 31 | 51 | — | 36 |
| 56-62 | — | — | — | — | — | — | — | — | — | — | 9 | — | 100 | 31 | 9 | — | 100 | -- | 32 |
| Aver. | — | 38 | 29 | 15 | 30 | 4 | 19 | 30 | 6 | 20 | 5 | 18 | 53 | 17 | 5 | 19 | 40 | 9 | 19 |

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